BALL STATE UNIVERSITY
College of Health
School of Kinesiology

EXSC 493: Advanced Concepts in Exercise Physiology
Spring 2026
3 Credits

Instructor: Dr. Rudi Marciniak, Ph.D., CSCS, TSAC-F, EP-C
Office: HP 308 Office Phone: (765) 285-3702 Email: rmarciniak@bsu.edu
Office Hours: By appointment (in person or TEAMS or Zoom)

Day/Time/Location:

Section 1: Tuesday & Thursday, 12:30-1:45pm

Section 2: Tuesday & Thursday, 2:00-3:15pm

Location: HP 254

Course CANVAS Page: All course content will be posted to CANVAS. Check this page regularly.

Course Description: The effect of exercise on the anatomical structures and the physiological functions in humans during acute and chronic activity. *Prerequisite:* Anatomy (EXSC 292; ANAT 201), EXSC 293.

Course Objectives: Upon completion of EXSC 493, students will be able to:

1. Identify and apply the acute exercise and training response of metabolic systems.
2. Describe the various factors that limit exercise performance.
3. Distinguish the effect of environmental stressors on the physiological response to exercise.
4. Discuss the specific adaptations that occur with various forms of exercise training.
5. Identify various ergogenic aids that have been used to enhance exercise performance, the physiological basis for their use, and the potential dangers associated with use.
6. Compare physiological mechanisms that explain why men and women may exhibit different responses to acute exercise and adaptations to exercise training.
7. Discuss physiological aging, and how it influences exercise responses and adaptations.
8. Search electronic data bases for research articles, read and interpret research articles, and understand the scientific writing process.

Instructional Method: Lecture. The course instructor will randomly call on students to contribute to in-class discussions. Group work and knowledge exploration in class will be a significant component of the learning process.

Course Time Commitment: It is expected that students will spend approximately 2 hours of study time outside of class for every one hour in class. Since this is a 3-credit class, you should expect to study an average of 6 hours outside of class each week.

Course Reading Materials (*Required*):

1. *Physiology of Sport and Exercise*, 9th ed., by Kenney, Wilmore, and Costill.
2. Additional reading requirements, which are primarily peer-reviewed articles from the scientific literature, will be made available on the course CANVAS website as announced in class and/or via the announcements page on the CANVAS site.

Course Notes: A version of the notes will be posted on CANVAS prior to each synchronous class.

Course Evaluation

Fatigue Debate Written Assignment (n=1) = 20%
Ergo Aids Group Presentation Project (n=1) = 15%
Comprehension Quizzes (n=6) = 20%
Exams (n=4) = 45%

Grades will be earned based on the following scale. There is no curving of grades, rounding up the decimal, or extra credit. There are no make-ups allowed for any evaluative component. Missed deliverables will result in 0 points assigned for that item.

Grading: Grades will be earned based on the following scale:

A	93.00% to 100.00%	**B-**	80.00% to 82.99%	**D+**	67.00% to 69.99%
A-	90.00% to 92.99%	**C+**	77.00% to 79.99%	**D**	63.00% to 66.99%
B+	87.00% to 89.99%	**C**	73.00% to 76.99%	**D-**	60.00% to 62.99%
B	83.00% to 86.99%	**C-**	70.00% to 72.99%	**F**	≤59.99%

Fatigue Debate Written Assignment (20%)

Students will be randomly assigned to a specific side (prosecution or defense) for a topical debate. The debate topic will center around limitations to human performance. Each student will craft a single-spaced 2-page written argument that demonstrates a rationale for *why your side* of the debate is ultimately more correct than the opposing viewpoint. Specific instructions will be covered in greater depth in class. A complete, final document is due to CANVAS by 11:59 pm on Sunday October 11, 2026.

Ergogenic Aids Group Presentation Project (15%)

The last weeks of the semester will be spent working in small groups. You will research a specific ergogenic agent and then teach these concepts to classmates in a group presentation. The processes of doing research, reading source material, and presenting information to classmates are expected to stimulate retention of concepts that would ordinarily be taught in a traditional lecture setting. The content delivered by each group will be included on the unit exam.

Comprehensive Quizzes (20%)

Comprehension Quizzes will occur during the *last 15-minutes of class as listed in the syllabus (All quizzes will occur on Thursdays)*. Each quiz will include 5-10 multiple choice or fill in the blank questions, as well as drawing (i.e., figure, structure). Quiz 1 will take place on CANVAS. All other quizzes will be completed in paper and pen/pencil format. All quizzes are closed notes. There will be no make-up quizzes given and 0-points will be awarded for any missed quiz. If you have accommodations for quizzes, an unexcused absence the day of the quiz will result in 0-points rewarded for that quiz similar to any other students' absence.

Unit Exams (45%)

There will be 4 CANVAS Exams as indicated in the schedule. The exams will be multiple-choice (MC) and have a total time limit equal to 75 seconds per MC question (Example: 40 questions x 75 seconds = 50 minutes). All exams are closed notes, resource, etc. and will require Lockdown Browser. *Following Exams 1-3, you will have the opportunity (not required) to earn 0.25 points back for each question you answered incorrectly by submitting a Word document that CORRECTLY explains (in less than 3 sentences) why the response you chose was incorrect for each missed question.* Exams 1-3 will be open from 6 am Thursday (no class held) until 1 pm Friday. Exam 4 will take place during finals week and the timing of the exam window will be announced at a later time. ***In general, exams/quizzes cannot be made up. However, arrangements can be made to complete them at different times if an absence is unavoidable due to emergencies, varsity sports participation, etc. These arrangements must be made BEFORE THE DUE DATE and are SUBJECT TO THE PROFESSOR'S APPROVAL.***

Course, Department, and Program Policies

Attendance policy: Attendance is expected at every class. In the event of an unavoidable absence, students are responsible for all course material and information disseminated during the missed class.

Academic fraud: Academic dishonesty by a student will not be tolerated in activity or academic areas and will be treated in accordance with the policy in the faculty handbook. Please refer to the specific sections in Undergraduate Rights and Responsibilities for information regarding academic honesty. These policies (including cheating on exams and plagiarism) will be strictly enforced. Incidents of academic dishonesty will be prosecuted to the full extent within the university judicial process.

Artificial Intelligence: Absolutely no use of artificial intelligence (AI) is permitted for this course, including planning and review stages of any assignment (i.e., Assistive and/or Predictive AI), as well as full and/or partial assignment generation (i.e., Generative AI). All work produced and/or submitted in this course should reflect your own ideas and demonstrate your current knowledge, abilities, and skills. Therefore, AI should not be used to complete any portion of the assignment(s). Doing so constitutes a violation of Ball State University's Student Academic Ethics Policy.

Communication: When emailing a professor, use a clear subject line (including your course and section), start with a formal salutation (i.e., Hello Dr. Marciniak), and keep your message concise and professional. Always sign off with your full name to ensure a prompt and accurate response.

Copyright Information on Course Materials: Students may not reproduce, distribute or publicly post their course materials without the instructor's permission. Students selling or distributing course materials or posting exams (e.g., quizlet.com) may violate the Ball State Code of Conduct and/or the Information Technology Users' Privileges and Responsibilities policy. Students violating this policy may be referred directly to Dr. Mike Gillilan in the Office of Student Rights and Community Standards.

Statement on Student Needs: If you need course adaptations or accommodations because of a disability, if you have any emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please speak to me as soon as possible.

Statement on Diversity: Ball State University aspires to be a university that attracts and retains a diverse faculty, staff and student body. We are committed to ensuring that all members of the campus community are welcome through our practice of valuing the various experiences and world views of those we serve. We promote a culture of respect and civil discourse as evident in our Beneficence Pledge. For Bias Incident Response service information, go to bsu.edu/multiculturalcenter/bias or e-mail mc2@bsu.edu.

Title IX: Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, here are available resources at Ball State University:

- Title IX Coordinator, AD Room 002, (765) 285-5163
- Office of Victim Services, Health Center, Room 205, (765) 285-7844; this resource is confidential
- Counseling Center, Lucina Hall, Room 320, (765) 285-1736; this resource is confidential
- Police Department, 200 North McKinley Avenue, (765) 285-1111 (911 from a campus phone), www.bsu.edu/police

Miscellaneous: You are not required to be online during class. Please turn off cell phones & other devices. Any students utilizing cell phones and/or headphones, or using computers for non-class related tasks, in class will be asked to leave. If computers become a problem, privileges for all technology (i.e., computers, tablets, etc.) will revoked from class lectures.

Student Resources

The Writing Center: As a student in this course, particularly as it relates to the *Fatigue Writing Assignment*, you are encouraged to use the Writing Center to get additional feedback on your writing. The Writing Center offers free planning, feedback, and accountability sessions (in person and online) to all students (including STEM sciences!) composing essays, reports, reflections, research projects, web content, lesson plans, slideshows, poster presentations, resumes, and other digital or print texts. To schedule a free appointment to discuss your writing, go to ***http://www.bsu.edu/writingcenter***. Online and in-person appointments are available; however, plan ahead because appointments book quickly!

WK	Date	Lecture Schedule	Readings	Deliverables
1	**8/24**	Metabolism	Ch 2	**Online QUIZ 1**
2	**8/31**	Factors Limiting Exercise Performance	From Ch 6, 8, 9	
3	**9/7**	Labor Day—NO CLASS Mon (9/7) Factors Limiting Exercise Performance		**In-Person QUIZ 2**
4	**9/14**	Factors Limiting Exercise Performance EXAM Online—NO CLASS Thurs (9/17)		**Online EXAM 1**
5	**9/21**	Exercise in the Elements (Heat & Cold)	Ch 14	**In-Person QUIZ 3**
6	**9/28**	Exercise in the Elements (Altitude)	Ch 15	
7	**10/5**	Adaptations to Training	From Ch 11-13, 16, 21	**Fatigue Assignment Due Sunday 10/11**
8	**10/12**	Fall Break—NO CLASS Mon-Tues (10/12-10/13) EXAM Online—NO CLASS Thurs (10/15)		**Online EXAM 2**
9	**10/19**	Aging	Ch 20	
10	**10/26**	Aging		**In-Person QUIZ 4**
11	**11/2**	Autonomic Nervous System	CANVAS	**In-Person QUIZ 5**
12	**11/9**	Autonomic Nervous System EXAM Online—NO CLASS Thurs (11/12)		**Online EXAM 3**
13	**11/16**	Sex Differences	Ch 21	
14	**11/23**	Sex Differences Thanksgiving Break—NO CLASS Wed-Fri (11/25-11/27)		**In-Person QUIZ 6 (Tues)**
15	**11/30**	Ergogenic Aids Project	CANVAS	**See Assignment for Due Dates**
16	**12/7**	Last Day of Classes Monday (12/7) **Finals Week**		**Online EXAM 4**

All elements of this syllabus are subject to change. You will be informed of any modifications as soon as possible.